In-situ density test (water replacement method)

Location		Job ref.	
		Borehole/Pit no.	
Soil description		Sample No.	
		Depth excavated m	
		Date	

Test method

BS1377: Part 9: 1990   **2.3**

Ring diameter   Depth of hole   mm (if specified:Yes/No*)

Volume of test hole   Wet mass of material

1. Surface correction Initial volume of water in ring above prepared surface (R_i) L	Material + drum 1 kg Drum 1 kg Material kg Material + drum 2 kg Drum 2 kg Material kg
2. Test hole + ring Final volume of water in hole and density ring (R_f) L	Material + drum 3 kg Drum 3 kg Material kg
(Alternative: hole + ring-oversize material (R_p) L)	Material + drum 4 kg Drum 4 kg Material kg
3. Total volume of test hole: $V_h = \dfrac{R_f - R_i}{1000} =$ m^3	Wet mass of total material (mw) kg

LABORATORY TESTS

Moisture content				**Mass and volume of oversize material**	
Container no:				Specified size limit BS Sieve	
Mass of wet soil + container			g	Container no.	
Mass of dry soil + container			g	Method of separation:	
Mass of container			g		
Mass of moisture			g	Mass of oversize material (ms) Kg	
Mass of dry soil			g	Volume of oversize material (vs) m^3	

For total material
Moisture content (w)   %

For smaller than specified size
Moisture content (wp)   %

For total material :	**For material finer than specified limit:**
	(a) Where oversize material replaced in hole:
Bulk density (p) = $\dfrac{mw}{Vh * 1000}$ = Mg/m3	Dry density = $\dfrac{mw - ms}{Rp-Ri}\ \dfrac{100}{100 + Wp}$ Mg/m3
	(b) Where volume oversize material obtained separately
Dry density (pd) = $\dfrac{p*1000}{100 + w}$ Mg/m3	Dry density = $\dfrac{mw - ms}{Vh - Vs}\ \dfrac{100}{100 + Wp}$ Mg/m3

Operator	Checked	Approved

* Delete as appropriate

Form 9B